

REMARKS

This Amendment is being filed in response to the Final Office Action mailed May 30, 2007, which has been reviewed and carefully considered. Entry of the present amendment and allowance of the present application in view of the amendments made above and the remarks to follow are respectfully requested.

By means of the present amendment, claim 6 has been written in independent form. Further, claim 8 has been canceled without prejudice and its features included in independent claims 1, 6 and 11. Further, claims 3 and 15 have been amended to place them in better form for appeal. Accordingly, no new issues requiring a new search have been introduced and entry of the present Amendment is respectfully requested.

In the Final Office Action, claims 1-9 and 11-14 are rejected under 35 U.S.C. §103(a) as allegedly unpatentable over U.S. Patent No. 6,417,127 (Yamamoto). Further, claim 10 is rejected under 35 U.S.C. §103(a) as allegedly unpatentable over Yamamoto in view of U.S. Patent No. 5,028,362 (Janney). It is respectfully submitted that claims 1-7 and 9-16 are patentable over Yamamoto and Janney for at least the following reasons.

Yamamoto is directed to a polycrystalline ceramic where, as shown in Tables 5-6, adding  $ZrO_2$  reduces linear transmittance from 40% to 25% as compared to a typical ceramic having  $MgO$ . Table 10 shows that increasing the particle size from  $0.48\mu m$  and the  $ZrO_2$  amount from 0.05mol% (Tables 5-6) to a particle size from  $1.50\mu m$  and to a  $ZrO_2$  amount of 2.60mol% has no effect on the linear transmittance which remains at 25%. However, adding more  $ZrO_2$  namely to 7.3mol% (test

piece 29 in Tables 9-10), where the particle size is 1.00 $\mu$ m dramatically reduces transmittance to 2%.

It is respectfully submitted that Yamamoto does not teach or suggest the present invention as recited in independent claim 1, and similarly recited in independent claims 6 and 11 which, amongst other patentable elements requires (illustrative emphasis provided):

wherein the alumina contains a concentration from 0.1 to 0.5 wt-% inclusive ZrO<sub>2</sub> as an additive and has an average crystal size  $\leq 2 \mu$ m, a relative density higher than 99.95%, and wherein **the ZrO<sub>2</sub> additive has an average particle size of at most 100 nm.**

Yamamoto is completely silent does not teach or suggest that the ZrO<sub>2</sub> additive has an average particle size of at most 100 nm. Surely, if having a ZrO<sub>2</sub> additive with an average particle size of at most 100 nm was obvious, then Yamamoto would have described it, since Yamamoto itself strives to find a polycrystalline ceramic having suitable properties. Despite disclosing many different polycrystalline ceramics, and forming many test samples, where up to 29 test pieces are tested, there is still no teaching or suggestion in Yamamoto of the particular polycrystalline alumina components recited in independent claims 1, 6 and 11. In fact Yamamoto is the very same background prior art described on page 3, lines 7-18, namely, EP1053983.

As described on page 3, lines 10-15 of the present application, it was believed that adding ZrO<sub>2</sub> as a dopant degrades optical transmittance. Further, as described on page 4, lines 1-5, it was unexpected to achieve a transparent ceramic despite the presence of zirconia additives, so long as the proper amount or concentration and size are used. In addition, Yamamoto teaches that adding ZrO<sub>2</sub> degrades transparency thus teaching away from the present invention as recited in independent

claims 1, 6 and 11. Janney is cited in rejecting dependent claim 10 to allegedly show other features and does not remedy the deficiencies in Yamamoto.

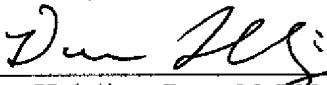
Accordingly, it is respectfully submitted that independent claims 1, 6, 10 and 11 are allowable, and allowance thereof is respectfully requested. In addition, it is respectfully submitted that claims 2-5, 7, 9-10 and 12-16 should also be allowed at least based on their dependence from independent claims 1, 6 and 11.

Claim 10 also contains patentable subject matter. Janney teaches an approach of gel casting which works (according to Janney at col. 5, line 67) for alumina grade RC-152. (Janney at col. 5, line 62 states that this powder was manufactured by the Reynolds Chem. Co., and its full name is "RC/52DBM." The omission of the "1" in "152" is a typographical error, since the reference to it in line 67 is to "RC-152." "DBM" stands for "dry ball-milled.") This powder is rather coarse: its granulometric data is known to one of skill in the art. e.g. from US 4,060,599 (which, for example, discloses at col. 6, lines 18-21, "... alpha alumina RC-152 DBM of Reynolds Metals Company, which is ultimately ground to crystals of a mean particle size of about 2.8 microns" and at col. 1, lines 36-38, that RC-152 DBM available commercially "... has a mean particle size between about 1 to 2 microns, typically about 1.6 microns." Hence, one of ordinary skill in the art would recognize from the description of the present invention that such coarse corundum powder cannot be used for manufacturing transparent ceramics. The raw powders for making products by the present invention have to be smaller by one order of magnitude compared to RC-152DBM. Thus, the special approach of gel casting disclosed by Janney does not disclose or suggest a way of gel casting which could be applied to the manufacture of ceramics by the present invention."

In addition, Applicants deny any statement, position or averment of the Examiner that is not specifically addressed by the foregoing argument and response. Any rejections and/or points of argument not addressed would appear to be moot in view of the presented remarks. However, the Applicants reserve the right to submit further arguments in support of the above stated position, should that become necessary. No arguments are waived and none of the Examiner's statements are conceded.

In view of the above, it is respectfully submitted that the present application is in condition for allowance, and a Notice of Allowance is earnestly solicited.

Respectfully submitted,

By   
Dicran Halajian, Reg. 39,703  
Attorney for Applicant(s)  
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**THORNE & HALAJIAN, LLP**  
Applied Technology Center  
111 West Main Street  
Bay Shore, NY 11706  
Tel: (631) 665-5139  
Fax: (631) 665-5101